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EXAMINER
CLEVELAND, MICHAEL B

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/852,090	YAMAGATA ET AL.	
	Examiner	Art Unit	
	Michael Cleveland	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *040604*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of Kobori '039 is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-4, 7-8, and 12-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Shi et al. (U.S. Patent 6,130,001, hereafter '001).

Claims 1, 3: '001 teaches a method of manufacturing a light emitting device (col. 2, lines 3-6) by

forming a luminous layer (18) (col. 3, lines 33-35) made of an electron-transporting material (A) and a hole-transporting material (B). The electron-transporting material (A) may be tris(8-quinolinol) aluminum (col. 4, lines 15-33) (also known as Alq or Alq3), an organic luminous material (see specification, p. 2, lines 1-11). Layer (18) is deposited by controlling the relative evaporation rates of A and B (col. 4, lines 10-13). The layer may begin as a layer of 0 % A (i.e., pure B), and increase to 100% A (i.e., pure A) (col. 3, line 32-col. 4, line 6).

Thus, layer (18) is formed by

forming a first luminous layer comprising organic luminous material (A, Alq) and a dopant (B) (in steadily decreasing amounts) by evaporation, and

forming a second luminous layer of pure A (col. 4, lines 1-5). The relative evaporation rate to achieve 100% A must be zero. That is, the evaporation of dopant B must be stopped while continuing to evaporate A.

Claims 2 and 4: The above discussion relates to the deposition of anode (14, 16), luminous layer (18), and cathode (20, 22) (cols. 3-4). However, '001 also teaches that the order of deposition may be reversed (col. 3, lines 19-23). That is, the layers may deposited in the order of cathode (22, 20), luminous layer (18), and anode (16, 14), and the luminous layer (18) begins as pure A and finishes as pure B.

The deposition of B must start after the deposition of A because the layer starts as pure A.

Claims 7 and 13: In the anode-to-cathode deposition, the cathode (22) is deposited on the second luminous layer (col. 3, lines 12-19; Fig.), and the cathode may be metallic (col. 2, lines 59-67).

Claims 8 and 15-17: As discussed above, the luminous material (A) may be Alq3.

Claims 12 and 14: In the cathode-to-anode deposition, the anode (14) is formed on the luminous layer (18). The anode may be metal (col. 2, lines 23-25).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-9 and 12-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori '039 in view of Peng (U.S. Patent 6,495,198, hereafter '198) and Shi '001. Ueda et al. (U.S. Patent 6,468,676, hereafter '676) and Maricle '525 are cited as evidence regarding claims 9 and 20-24.

Claims 1, 3, and 5: Reference example 2 of '039 (col. 559) teaches forming a light-emitting device by

forming a layer by co-evaporating Alq (an organic luminous material) and TPD005 and rubrene (dopants) as the light-emitting layer of an electroluminescent (EL) device (col. 559, lines 44-50)

forming a layer of Alq alone as an electron-transporting and light-emitting layer on top of the Alq/TPD005/rubrene layer (col. 559, lines 51-54).

'039 does not explicitly teach that the evaporation of the dopants is stopped *while continuing the flow of Alq* in the deposition of these two layers.

However, '198 teaches that the efficiency and physical properties of electroluminescent devices may be improved by blurring the heterojunction between adjacent layers (such as the light-emitting and electron-transport layer) of EL devices (col. 2, lines 1-5; col. 3, lines 13-28). '198 achieves the blurred heterojunctions by moving the substrate past a series of evaporation sources (See Fig. 3B and col. 3, line 32-col. 4, line 13), to produce graded areas between the layers (see Fig. 2B). Therefore, it does not teach stopping the evaporation of one material while continuing the evaporation of another.

However, Shi '001 teaches another method of blurring the heterojunction between layers (col. 3, lines 33-44), by controlling the relative rates of evaporation, as discussed above.

Taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have blurred the heterojunction between the Alq3/TPD005/rubrene layer and the Alq3 layer in the EL device of '039 because '198 teaches that blurred heterojunctions improve the efficiency and physical properties of EL devices. Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have performed this blurring by gradually decreasing and finally stopping the flow of TPD005 and rubrene while continuing the flow of Alq3 with a reasonable expectation of success because '001 teaches that blurred heterojunctions of EL devices may be achieved by controlling the relative flow rates of the materials in the layers.

Claims 2, 4, and 6: As discussed above, '001 teaches that the layers may be deposited from cathode to anode instead of anode to cathode (col. 3, lines 19-23). '039 mirrors this teaching (col. 33, lines 33-35). Therefore, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to have reversed the process described above: depositing a cathode, then an electron-emitting layer of Alq3, and gradually increasing (i.e., starting) the flow of dopants TPD005 and rubrene.

Claims 5 and 6: Alq is a green luminescent material (see '039, col. 2, lines 18-25 or current specification, p. 2, lines 1-11). The Alq/TPD005/rubrene layer appears to be a yellow layer ('039, col. 559, lines 60-62). However, '039 also teaches that colors of light ranging from blue to red are of interest (col. 1, lines 19-23, col. 2, lines 16-48) and that there are known dopants to produce red layers (col. 33, lines 36-47), including Alq3 doped with red dyes, such as P-660 or DCM1 (col. 2, lines 23-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a red Alq/DCM1 or Alq/P-660 to have produced a red layer instead of a yellow layer because '039 teaches that red EL devices are of interest in the art and that Alq doped with DCM1 or P-660 is known to produce red layers.

Claims 7 and 13: '039 teaches that a metallic magnesium-silver (MgAg) layer is deposited on the Alq layer (col. 559, lines 55-59).

Claims 8 and 15-19: As discussed above the luminescent host material may be Alq.

Claim 9 and 20-24: Rubrene is a fluorescent organic material. (See '525, col. 5, lines 40-45.) Regarding claims 23 and 24, DCM1 is also an organic fluorescent material. (See '676, col. 34, lines 18-35).

Claims 12 and 14: During cathode-to-anode deposition, the anode is formed on the luminous layers. The anode may be metal ('001, col. 2, lines 23-25; see also '039, col. 33, lines 10-33).

5. Claims 10 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori '039 in view of Peng '198 and Shi '001, as applied to claims 1-6, above, and further in view of Singh et al. (U.S. Patent 6,228,228, hereafter '228). Thompson et al. (U.S. Patent 6,413,656, hereafter '656) is cited as evidence.

'039, '198, and '001 are discussed above. They do not teach that the dopant in the red layer is phosphorescent.

However, '228 demonstrates that red light-emitting layers may be formed by doping Alq with PtOEP (col. 10, lines 26-33). Therefore, it would have been obvious to one of ordinary skill

in the art at the time the invention was made to have used PtOEP as a dopant to form a red EL layer instead of DCM1 or P-660 as disclosed by '039 with a reasonable expectation of success and with the expectation of similar results because '228 demonstrates the art recognized suitability of Alq/PtOEP layers as red EL layers, and the selection of a known material based on its suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '656 teaches that PtOEP is phosphorescent (col. 4, lines 18-22).

6. Claims 11 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori '039 in view of Peng '198 and Shi '001, as applied to claims 1-6, above, and further in view of Yamada et al. (U.S. Patent 6,215,462, hereafter '462).

'039, '198, and '001 are discussed above. They do not discuss some uses of the EL devices (e.g., '198 discusses screen displays and multimedia monitors (col. 1, lines 16-26)), but they do not specifically teach that the EL device is incorporated into a video camera, digital camera, goggle display, car navigation system, sound reproduction system, notebook PC, game apparatus, portable information terminal or image playback device.

'462 teaches that organic EL devices are useful as the displays in the image playback portions of cameras (col. 4, lines 46-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the EL device of '039, '198 and '001 into an image playback device with a reasonable expectation of success because '462 teaches that organic EL devices may be used in image playback devices (i.e., a specific multimedia monitor).

7. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu (U.S. Patent 6,541,909, hereafter '909) in view of Xie et al. (U.S. Patent 5,989,737, hereafter '737).

Claim 1: '909 teaches a method of manufacturing a light emitting device comprising: forming a layer (5a) by

forming a first thin film (7 in Fig. 2 or 4 in Fig. 4) comprising an organic material and a dopant (col. 4, lines 8-12; col. 5, lines 44-57) by vapor deposition (col. 5, lines 50-52), and

forming a second film (the portion of 5a between layers 7 and 6 in Fig. 2 or layer 5b in Fig. 4) made of the organic material without the dopant (col. 4, lines 12-15, col. 5, lines 56-57), wherein the concentration of the dopant along a depth direction in the first film (7, between p and q) is constant (Fig. 5-1; col. 6, lines 29-30). The concentration of the dopant is determined by the relative rates of vapor deposition (col. 4, lines 15-17). Therefore, to produce a layer without dopant, the vapor deposition of the dopant must be stopped.

'909 does not explicitly state A) that the vapor deposition occurs by evaporation, nor B) that the second film is produced by stopping evaporation of the dopant while continuing evaporation of the organic material.

A) The examiner takes Official Notice that evaporation is a notoriously well known method of vapor depositing the organic luminescent material and dopant of light-emitting devices. See, e.g., '737, col. 14, lines 3-20. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.,* 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used evaporation as the particular method of vapor deposition for the organic luminescent and dopant because '737 teaches that evaporation is an operative method of vapor depositing the materials.

B) As stated above, '909 teaches that the concentration of the dopant is determined by the relative rates of vapor deposition of the organic luminescent material and the dopant (col. 4, lines 15-17). Therefore, to produce a layer without a dopant, the evaporation of the dopant must be stopped. Thus, the evaporation of the undoped layer must proceed either 1) by continuing the evaporation or 2) by stopping and restarting the evaporation of the material. '909 does not explicitly state which possibility is used. *Mueller Brass Co. v. Reading Industries* (176 USPQ 361, p. 369) states that in judging the level of ordinary skill in the art, it is the level of those who normally attack the problems of the art that counts; persons who do most of the problem solving in involved art are graduate engineers; as such they are chargeable with general knowledge concerning principles of engineering outside the narrow field involved and with the skills, ingenuity, and competence of the average professional engineer. One of ordinary skill in the art would have understood that stopping and restarting the evaporation of the organic material

would necessarily have taken longer than merely continuing the evaporation, and that an increase in the time of production would necessarily have reduced the number of light-emitting devices manufactured per unit time (production rate). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have continued the evaporation of the organic material while stopping the evaporation of the dopant in order to have minimized the process time, and therefore maximized the production rate.

Claim 7: '909 teaches that cathode (6) is deposited on the second layer, but does not teach a particular cathode material. It does teach that any generally known materials may be used (col. 6, line 65-col. 7, line 8). '737 teaches that cathodes for EL devices may be metallic (col. 13, lines 31-38). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a metallic film as the particular cathode of '909 because '737 teaches that metals are operative cathodes for light-emitting devices.

8. Claim 2-6, 8-9 and 12-24are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu '909 in view of Xie '737 as applied to claim 1 above, and further in view of Kobori et al. (U.S. Patent 6,285,039, hereafter '039). Ueda et al. (U.S. Patent 6,468,676, hereafter '676) and Maricle et al. (U.S. Patent 3,654,525, hereafter '525) are cited as evidence regarding claims 9 and 20-24.

Reverse deposition (applies to independent claims 2, 4, 6):

Motomatsu '909 and Xie '737 are discussed above. Motomatsu teaches making a light emitting device from anode(2) to cathode (6) by forming a thin film of an organic electron-transporting compound and a dopant followed by forming a thin film of the organic electro-transporting layer alone, as discussed above. The combination fairly suggests instantaneously stopping evaporation of the dopant to produce the second layer for the reasons discussed above.

The references do not teach forming a layer of an organic material by evaporation and then forming a second thin film by instantaneously starting evaporation of the dopant while continuing the evaporation of the organic material. However, the examiner takes Official Notice that it is well known that the layers of light-emitting devices may be deposited from cathode to anode instead of anode to cathode. See, e.g., '039, col. 33, lines 33-35. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have

reversed the process described above: depositing a cathode, then evaporating the organic electron-transport layer free of dopant, then the electron-transport layer that comprises the dopant through to the anode with a reasonable expectation of success and with the expectation of similar results because '039 teaches that cathode-to-anode construction is an operable method of constructing light-emitting devices. It would have been obvious to have deposited the dopant by instantaneously starting evaporation of the dopant at the desired concentration while continuing the evaporation of the organic material to have maximized production rate for reasons analogous to the discussion of "instantaneously stopping" above.

Claims 12, 14, 46, 48, 80, 82: In the cathode-to-anode deposition, the anode is deposited on the organic films. '737 teaches that the anode may be metallic (col. 13, lines 45-49).

Two luminescent films (applies to independent claims 3-6):

'909 explicitly teaches two embodiments: Fig. 2, which comprises a layer (5a) comprising a layer (7) of an electron-transporting material and a dopant and another layer (between 7 and 6) of an electron-transporting material without a dopant, and Fig. 4, which comprises a light emitting layer (4) comprising a dopant and an electron-transporting layer (5b) without a dopant. '909 does not identify specific light-emitting or electron-transport materials, but suggests that any generally known materials may be used (col. 6, line 65-col. 7, line 8). Therefore, it does not explicitly teach forming a layer of a luminous material and a dopant followed by forming a layer of the luminous material alone.

However, reference example 2 of '039 (col. 559) teaches forming a light-emitting device by

forming a layer by co-evaporating Alq (an organic luminous material) and TPD005 and rubrene (dopants) as the light-emitting layer of an electroluminescent (EL) device (col. 559, lines 44-50)

forming a layer of Alq alone as an electron-transporting and light-emitting layer on top of the Alq/TPD005/rubrene layer (col. 559, lines 51-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Alq as the particular light-emitting material of layer (4) or the particular electron-transporting material of layer (7) with a reasonable expectation of success

because '039 teaches that Alq is an operative light-emitting and electron-transporting material, and further explicitly demonstrate an embodiment with a first layer of Alq and a dopant and a second, adjacent layer of Alq alone.

Claims 5, 6: Alq is a green luminescent material (see '039, col. 2, lines 18-25 or current specification, p. 2, lines 1-11). The Alq/TPD005/rubrene layer appears to be a yellow layer ('039, col. 559, lines 60-62). However, '039 also teaches that colors of light ranging from blue to red are of interest (col. 1, lines 19-23, col. 2, lines 16-48) and that there are known dopants to produce red layers (col. 33, lines 36-47), including Alq3 doped with red dyes, such as P-660 or DCM1 (col. 2, lines 23-25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a red Alq/DCM1 or Alq/P-660 to have produced a red layer instead of a yellow layer because '039 teaches that red EL devices are of interest in the art and that Alq doped with DCM1 or P-660 is known to produce red layers.

Claim 8, 15-19: As described above, the host material may be Alq.

Claim 9, 20-24: Rubrene is a fluorescent organic material. (See '525, col. 5, lines 40-45.) Regarding claims 23 and 24, DCM1 is also an organic fluorescent material. (See '676, col. 34, lines 18-35).

Claim 13: During anode-to-cathode deposition, '737 teaches that the cathode may be metallic, as discussed above regarding claim 7.

9. Claims 10 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu '909 in view of Xie '737 and Kobori '039, as applied to claims 2-6, above, and further in view of Singh et al. (U.S. Patent 6,228,228, hereafter '228). Thompson et al. (U.S. Patent 6,413,656, hereafter '656) is cited as evidence.

'909, '737, and '039 are discussed above. They do not teach that the dopant in the red layer is phosphorescent.

However, '228 demonstrates that red light-emitting layers may be formed by doping Alq with PtOEP (col. 10, lines 26-33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used PtOEP as a dopant to form a red EL layer instead of DCM1 or P-660 as disclosed by '039 with a reasonable expectation of success and with the expectation of similar results because '228 demonstrates the art recognized

suitability of Alq/PtOEP layers as red EL layers, and the selection of a known material based on its suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '656 teaches that PtOEP is phosphorescent (col. 4, lines 18-22).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu '909 in view of Xie '737, as applied to claims 1, above, and further in view of Yamada et al. (U.S. Patent 6,215,462, hereafter '462).

'909, and '737 are discussed above. They discuss some uses of the EL devices (e.g., '909 teaches that the devices are used in organic EL displays (col. 7, lines 9-10) and '737 teaches flat-panel display, such as TV screens, computer screens, and the like (col. 1, lines 47-52), but they do not specifically teach that the EL device is incorporated into a video camera, digital camera, goggle display, car navigation system, sound reproduction system, notebook PC, game apparatus, portable information terminal or image playback device.

'462 teaches that organic EL devices are useful as the displays in the image playback portions of cameras (col. 4, lines 46-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the EL device of '909 and '737 into an image playback device with a reasonable expectation of success because '462 teaches that organic EL devices may be used in image playback devices (i.e., a specific organic EL display device).

11. Claims 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu '909 in view of Xie '737 and Kobori '039, as applied to claims 2-6, 36-40 above, and further in view of Yamada '462, for the reasons given above regarding claim 11.

Response to Arguments

12. Applicant's arguments filed 4/6/2004 have been fully considered but they are not persuasive.

The rejections under 35 USC 102 over Xie and under USC 103 over Xie in view of Yamada are withdrawn in view of Applicant's amendment.

Applicant argues that continuing evaporation would not necessarily have increased the production rate, but does not provide reasoning for the argument. Zero time between steps (continuing evaporation) would necessarily have involved less time than a finite time between steps and therefore, all other factors equal, would have led to increased production. Applicant's scenario is noted, but does not contradict the examiner's assertion because the production rate of the first device would have increased. Even if Applicant devises a scenario in which not waiting at that stage would not increase the overall production, one of ordinary skill in the art certainly would have recognized that zero time between steps (continuing evaporation) would necessarily have involved less time than a finite time between steps and therefore would have allowed increased production, especially in the straightforward production of a single device, as in Motomatsu.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant argues that the statement of Kobori regarding reversing the deposition order can be done does not teach that it should be done. The argument is unconvincing. The Examiner has taken Official Notice that such reverse deposition is very well known in the art. Applicant has not adequately traversed the taking of Official Notice by explaining why reverse deposition is not well known in the art. Accordingly, reverse deposition is taken as admitted prior art in accordance with MPEP 2144.03.C. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Thus, the teaching that reverse deposition is of interest in the art of constructing EL devices is sufficient to motivate cathode to anode construction. As to Applicant's assertion regarding the transparency of the substrate of Motomatsu, the argument is unconvincing because upward emitting EL devices are very well known (See, e.g., Forrest, U.S. Patent 5,703,436, Fig. 2C) and

because transparent cathodes are well known in the art as well (See, e.g., VanSlyke et al., U.S. Patent 4,720,432, col. 5, lines 51-56).

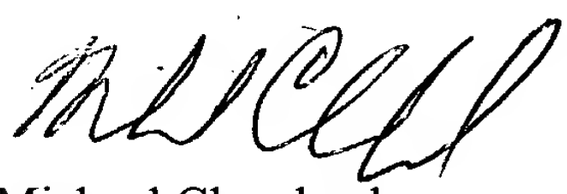
Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. So et al. (U.S. Patent 5,925,980) is cited of interest for a more detailed discussion of the physical and electrical advantages of blurred heterojunctions taught by Peng '198 and Shi '001. See Figs. 1, 3, and 4, and col. 2, line 60-col. 4, line 36. Forrest and VanSlyke are cited for the reasons immediately above.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Tuesday-Friday and alternate Mon, 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Cleveland
Patent Examiner
May 14, 2004